AMENDMENTS TO THE CLAIMS:

1. (Currently amended) A method for storing ~~a~~ information for one or more semantic ~~object~~

objects derived from ~~geological seismic survey~~ raw data, the method comprising:

      receiving a semantic object extracted from said raw data and classified to comprise said

semantic object, said received semantic object having one or more attributes;

      ~~summarizing~~ generating at least one of:

          a summary of attributes of said semantic object by calculating one or more

statistics of one or more of said one or more attributes of said received semantic obect;

          a confidence level of said received semantic object that quantifies a degree of

certainty that said received semantic object has been correctly classified and/or labeled; and

          a compact representation of raw data of said received semantic object;

      generating indexing information for one or more of the summary of attributes, the

confidence level, and the compact representation of said semantic object; and

      storing the semantic object along with its associated summary of attributes, confidence

level, compact representation, and ~~the index of the summary of attributes~~ indexing information in

a semantic object database associated with a database storing said raw data.

2. (Canceled)

3. (Currently amended) The method of claim 1, ~~further comprising searching a database of a~~

~~plurality of indexed attributes of semantic objects~~ wherein a summary of attributes, confidence

level, and/or compact representation is generated and stored in said semantic object database for

each of a plurality of said semantic objects and said semantic object database can be searched.

4. (Currently amended) The method of claim 3, ~~further comprising searching the index of the~~

~~plurality of semantic object attributes to~~ wherein a query used to search said semantic object

database will identify any of a semantic object having attributes that match one or more terms of

~~a~~ said query and ~~retrieving~~ the identified semantic object can selectively be retrieved, including

selectively retrieving at least one of:

any information in said semantic object database associated with said identified semantic

object; and

any of the raw data associated with said identified semantic object.

5. (Original) The method of claim 3, wherein an optimizing mechanism is used in searching to

optimize the process of searching.

6. (Original) The method of claim 1, wherein the semantic object represents a model of a

phenomena of interest that is measured by a collection of data which exceeds a data size that is

accessible with a predetermined efficiency by multiple simultaneous users.

7-9. (Canceled)

10. (Currently amended) The method of claim ~~9~~ 1, wherein the compact approximation

comprises a multiple segment polyline.

11. (Original) The method of claim 10, wherein each segment of the multiple segment polyline

comprises a best fit line having end point coordinates and a slope.

12. (Canceled)

13. (Original) A method of deploying computer infrastructure, comprising integrating

computer-readable code into a computing system, wherein the code in combination with the

computing system is capable of performing the method of claim 1.

14. (Currently amended) A <u>storage medium having tangibly embedded therein a</u> program

~~embodied in a~~ <u>of</u> computer readable ~~medium~~ <u>instructions</u> executable by a digital processor, the

program comprising:

      instructions for receiving a semantic object <u>extracted from raw data and classified to</u>

<u>comprise said semantic object, said received semantic object having one or more attributes</u>;

      instructions for ~~summarizing attributes of a semantic object derived from geological~~

~~seismic survey data~~ <u>generating at least one of:</u>

            <u>a summary of</u> attributes of said semantic object <u>by calculating one or more</u>

<u>statistics of one or more of said one or more attributes of said received semantic obect;</u>

            <u>a confidence level of said received semantic object that quantifies a degree of</u>

certainty that said received semantic object has been correctly classified and/or labeled; and

a compact representation of raw data of said received semantic object;

instructions for ~~indexing the summary of attributes~~ generating indexing information for

one or more of the summary of attributes, the confidence level, and the compact representation

of said semantic object; and

instructions for storing the ~~summary of attributes and the index of the summary of~~

~~attributes~~ semantic object along with its associated summary of attributes, confidence level,

compact representation indexing information in a semantic object database associated with a

database storing said raw data.

15. (Canceled)

16. (Currently amended) The ~~program~~ storage medium of claim 14, wherein a summary of

attributes, confidence level, and/or compact representation can be generated and stored in said

semantic object database for each of a plurality of said semantic objects and said semantic object

database can be searched, further comprising instructions for searching ~~a~~ said semantic object

database ~~of a plurality of indexed attributes of semantic objects~~.

17. (Currently amended) The ~~program~~ storage medium of claim 16, ~~further comprising~~

~~instructions for searching the index of the plurality of semantic object attributes to~~ wherein a

query used to search said semantic object database will identify any of a semantic object having

attributes that match one or more terms of a query ~~and~~, said program further comprising

instructions for selectively retrieving the identified semantic object, including the capability to

selectively retrieve at least one of:

any information in said semantic object database associated with said identified semantic

object; and

any of the raw data associated with said identified semantic object.

18. (Currently amended) The ~~program~~ storage medium of claim 16, wherein an optimizing

mechanism is used in searching to optimize the process of searching.

19. (Currently amended) The ~~program~~ storage medium of claim 14, wherein the semantic object

represents a model of a phenomena of interest that is measured by a collection of data which

exceeds a data size that is accesible with a predetermined efficiency by multiple simultaneous

users.

20-22. (Canceled)

23. (Currently amended) The ~~program~~ storage medium of claim ~~22~~ 14, wherein the compact

approximation comprises a multiple segment polyline.

24. (Currently amended) The ~~program~~ storage medium of claim 23, wherein each segment of

the multiple segment polyline comprises a best fit line having end point coordinates and a slope.

25. (Canceled)

26. (Currently amended) A system for storing a semantic object, the system comprising:

a semantic object summarizer, executed by a computer, that receives a previously-defined

semantic object extracted from raw data and classified to comprise said semantic object, said

received semantic object having one or more attributes, and ~~summarizes attributes of a semantic~~

~~object derived from geological seismic survey data~~ generates at least one of:

a summary of attributes of said semantic object by calculating one or more

statistics of one or more of said one or more attributes of said received semantic obect;

a confidence level of said received semantic object that quantifies a degree of

certainty that said received semantic object has been correctly classified and/or labeled; and

a compact representation of raw data of said received semantic object;

an indexer, executed by said computer, that ~~indexes the summarized attributes~~ generates

indexing information for one or more of the summary of attributes, the confidence level, and the

compact representation of said semantic object; and

a database that stores ~~the summary of attributes and the index of the summary of~~

~~attributes~~ semantic object along with its associated summary of attributes, confidence level,

compact representation indexing information as a semantic object database associated with a

database storing said raw data.

27. (Canceled)

28. (Currently amended) The system of claim 26, <u>wherein a summary of attributes, confidence</u>

<u>level, and/or compact representation can be generated and stored in said semantic object database</u>

<u>for each of a plurality of said semantic objects and said semantic object database can be</u>

<u>searched, said system</u> further comprising a searching device that ~~searches~~ <u>permits a user to</u>

<u>search</u> the <u>semantic object</u> database ~~of a plurality of indexed attributes of semantic objects~~.

29. (Currently amended) The system of claim 26, ~~further comprising a searching device that~~

~~searches the index of the plurality of semantic object attributes to identify a semantic object~~

~~having attributes that match a query and retrieving the identified semantic object~~ <u>wherein a query</u>

<u>used to search said semantic object database will identify any of a semantic object having</u>

<u>attributes that match one or more terms of said query and the identified semantic object can</u>

<u>selectively be retrieved, including selectively retrieving at least one of:</u>

      <u>any information in said semantic object database associated with said identified semantic</u>

<u>object; and</u>

      <u>any of the raw data associated with said identified semantic object</u>.

30. (Original) The system of claim 28, wherein said searching device comprises an optimizing

mechanism that optimizes the process of searching.

31. (Original) The system of claim 26, wherein the semantic object represents a model of a

phenomena of interest that is measured by a collection of data which exceeds a data size that is

accessible with a predetermined efficiency by multiple simultaneous users.

32-34. (Canceled).

35. (Currently amended) The system of claim ~~34~~ 26, wherein the compact approximation

comprises a multiple segment polyline.

36. (Original) The system of claim 35, wherein each segment of the multiple segment polyline

comprises a best fit line having end point coordinates and a slope.

37. (Canceled)

38. (Currently amended) The method according to claim 1, wherein <u>data comprises geological</u>

<u>seismic survey data and </u>said semantic object has been previously extracted from said geological

seismic survey data and comprises one or more of:

  a fault;

  a horizon;

  a channel; and

  one or more subcomponent of any of the above semantic objects.

39. (New) The method according to claim 11, wherein an R-tree spatial index structure is used

to facilitate a retrieval of a structure that approximates a polyline.

40. (New) The method according to claim 11, wherein said polyline segments are searchable

using one or more terms of a sub-query of a query.